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GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: June 18, 2003, 03:16:37 ; Search time 33.4567 Seconds  
(without alignments)  
1215.770 Million cell updates/sec

Title: US-09-807-933B-5  
Perfect score: 1956  
Sequence: 1 MKFLTISAAILALVGTEN.....TYKQVCPKAITAKSGCSRK 360

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%

Listing first 45 summaries

Database :

A\_Geneseq\_101002:\*

- 1: /SID2/gcgdata/geneseq/geneseq-emb1/AA1980.DAT:\*
- 2: /SID2/gcgdata/geneseq/geneseq-emb1/AA1981.DAT:\*
- 3: /SID2/gcgdata/geneseq/geneseq-emb1/AA1982.DAT:\*
- 4: /SID2/gcgdata/geneseq/geneseq-emb1/AA1983.DAT:\*
- 5: /SID2/gcgdata/geneseq/geneseq-emb1/AA1984.DAT:\*
- 6: /SID2/gcgdata/geneseq/geneseq-emb1/AA1985.DAT:\*
- 7: /SID2/gcgdata/geneseq/geneseq-emb1/AA1986.DAT:\*
- 8: /SID2/gcgdata/geneseq/geneseq-emb1/AA1987.DAT:\*
- 9: /SID2/gcgdata/geneseq/geneseq-emb1/AA1988.DAT:\*
- 10: /SID2/gcgdata/geneseq/geneseq-emb1/AA1989.DAT:\*
- 11: /SID2/gcgdata/geneseq/geneseq-emb1/AA1990.DAT:\*
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- 14: /SID2/gcgdata/geneseq/geneseq-emb1/AA1993.DAT:\*
- 15: /SID2/gcgdata/geneseq/geneseq-emb1/AA1994.DAT:\*
- 16: /SID2/gcgdata/geneseq/geneseq-emb1/AA1995.DAT:\*
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- 18: /SID2/gcgdata/geneseq/geneseq-emb1/AA1997.DAT:\*
- 19: /SID2/gcgdata/geneseq/geneseq-emb1/AA1998.DAT:\*
- 20: /SID2/gcgdata/geneseq/geneseq-emb1/AA1999.DAT:\*
- 21: /SID2/gcgdata/geneseq/geneseq-emb1/AA2000.DAT:\*
- 22: /SID2/gcgdata/geneseq/geneseq-emb1/AA2001.DAT:\*
- 23: /SID2/gcgdata/geneseq/geneseq-emb1/AA2002.DAT:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1956	100.0	360	21	AA09823
2	1956	100.0	360	23	AA015054
3	1956	100.0	360	23	AB08062
4	1404	71.8	338	21	AA09821
5	1404	71.8	338	23	AA015052
6	1404	71.8	338	23	AB08060
7	1332	68.1	366	21	AA09822
8	1332	68.1	366	23	AA015053
9	1332	68.1	366	23	AB08061
10	1209	61.8	338	21	AA09824

11	1209	61.8	338	23	AA015055
12	1209	61.8	338	23	AB08063
13	1195.5	61.1	387	21	AB09825
14	1195.5	61.1	387	23	AA015056
15	1195.5	61.1	387	23	AB08064
16	1194	61.0	346	21	AB09826
17	1194	61.0	346	23	AA015057
18	1194	61.0	346	23	AB08065
19	1067.5	54.6	245	23	AA015063
20	1005.5	51.4	228	23	AA015062
21	754	38.5	225	21	AA04798
22	754	38.5	225	23	AB05057
23	747	38.2	225	17	AA04925
24	747	38.2	297	17	AA04933
25	747	38.2	308	17	AA04934
26	745	38.1	299	17	AA04928
27	745	38.1	299	19	AA03624
28	740	37.8	200	19	AA03979
29	736	37.6	306	19	AA04270
30	735	37.6	204	19	AA05397
31	732	37.4	200	19	AA05396
32	731.5	37.4	223	23	AA015070
33	731.5	37.4	223	23	AA08062
34	724	37.0	200	19	AA05396
35	722.5	36.9	376	12	AA015272
36	722.5	36.9	376	13	AA025527
37	722.5	36.9	376	13	AA025466
38	722.5	36.9	376	13	AA025429
39	722.5	36.9	376	13	AA027969
40	722.5	36.9	376	14	AA042064
41	722.5	36.9	376	16	AA067389
42	722.5	36.9	376	19	AA046617
43	716.5	36.6	376	14	AA037151
44	713	36.5	202	19	AA039659
45	712	36.4	357	15	AB04127

#### ALIGNMENTS

RESULT 1  
AAB09823 standard; Protein; 360 AA.

XX AC AAB09823;  
XX DT 25-SEP-2000 (first entry)  
XX DE Endoglucanase protein sequence 3.  
XX KW Endoglucanase; cellulose breakdown; produce pulp; papermaking;  
XX KW animal foodstuff.  
XX OS Rhizopus oryzae  
XX PN WO200024879-A1.  
XX PD 04-MAY-2000.

XX PF 25-OCT-1999; 99WO-JP05884.  
XX PR 23-OCT-1998; 98JP-0302387.  
XX PA (MEIJ) MEIJU SEIKA KAISHA LTD.  
XX PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;  
XX PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;  
XX DR WPI: 2000-365117/31.  
XX DR N-PSDB; AAA62728.  
XX PT Endoglucanases of fungal origin with high activity under alkaline  
XX PT conditions for production of paper pulp and animal feedstuffs

XX Claim 44; Page 115-117; 180pp; Japanese.

CC This sequence represents an endoglucanase protein. The invention relates  
CC to an endoglucanase of fungal origin which can completely break down  
CC purified cellulose at a concentration of less than 1mg protein/litre,  
CC and produces more than 50% breakdown of cellulose at pH 8.5. The  
CC invention includes endoglucanase protein sequences (see  
CC AAB09825-B09830), endoglucanase nucleotide sequences (see  
CC AAB62726-A62732) and primers (AAB62733-A62802) which are used in the  
CC identification of the endoglucanase sequences, and in the construction of  
CC vectors containing the polynucleotides. The endoglucanase enzymes are  
CC used for the production of pulp for papermaking and for the production of  
CC animal feedstuffs.

XX Sequence 360 AA;

Query Match 100.0%; Score 1956; DB 21; Length 360;  
Best Local Similarity 100.0%; Pred. No. 2,6e-130;  
Matches 360; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFLTIASSAIIALAVGTEMAHAECISKAYYQCGKNDGPTCCSGSTCVDPDNPFFS 60  
DB 1 MKFLTIASSAIIALAVGTEMAHAECISKAYYQCGKNDGPTCCSGSTCVDPDNPFFS 60  
QY 61 QCVNENLSTNKSHTTTTESAKKTTTGSKKTTTTEASKKTTTTEASKKTTTTEAS 120  
DB 61 QCVNENLSTNKSHTTTTESAKKTTTGSKKTTTTEASKKTTTTEASKKTTTTEAS 120  
QY 121 KTTTTTAKASTSTSSSSASASTNYSAVSGASGNGETTRWDCCKPSCMPGKADVTSP 180  
DB 121 KTTTTTAKASTSTSSSSASASTNYSAVSGASGNGETTRWDCCKPSCMPGKADVTSP 180  
QY 181 VGSCKNDGKTLADNNTONGCVGSSSYTCNDNPWVSDILAAGFAAASISGSEATWCCA 240  
DB 181 VGSCKNDGKTLADNNTONGCVGSSSYTCNDNPWVSDILAAGFAAASISGSEATWCCA 240  
QY 241 CPELFTSTAVKGMVQVNTGSDLSGNTGAHFDLQMPGGVGGINCATQWGAFTDG 300  
DB 241 CPELFTSTAVKGMVQVNTGSDLSGNTGAHFDLQMPGGVGGINCATQWGAFTDG 300  
QY 301 WGARVGVSSASDCSNLPSALQAGCKMRFGFNADNPMTYKQVTCPEKAITAKSGCSRK 360  
DB 301 WGARVGVSSASDCSNLPSALQAGCKMRFGFNADNPMTYKQVTCPEKAITAKSGCSRK 360

RESULT 2  
AA015054  
ID AAO15054 standard; Protein; 360 AA.

XX AAO15054;  
AC AAO15054;  
XX  
DT 22-AUG-2002 (first entry)

XX Rhizopus arrhizus endoglucanase-related protein 3.

XX Zymogycetes-originated endoglucanase; cellulose binding domain;  
KM fibre processing; waste paper de-inking; paper pulp.

XX Rhizopus arrhizus;

XX WO200242474-A1.

XX 30-MAY-2002.

XX 21-NOV-2001; 2001WO-JP10188.

XX 21-NOV-2000; 2000JP-0354296.

XX (MEIJU) MEIJU SEIKA KAISHA LTD.

XX Nakane A, Baba Y, Koga J, Kubota H;

XX

DR WPI; 2002-471729/50.  
DR N-PSDB; AAL43246.

XX Cellulose-binding domain-lacking Zymogycetes-originated endoglucanase,  
PT with effect of endoglucanase activity enhanced in processing fibers,  
PT deinking waste paper and improving freeness of paper pulp

XX Claim 5; Page 63-65; 109pp; Japanese.

CC The invention comprises the amino acid and coding sequences of  
CC zymogycetes-originated endoglucanase enzymes lacking the cellulose  
CC binding domain. The zymogycetes-originated endoglucanase enzymes of the  
CC invention have enhanced endoglucanase activity. The zymogycetes-  
CC originated endoglucanase enzymes of the invention are useful for  
CC processing fibres, de-inking waste paper and improving the freeness of  
CC paper pulp - which is particularly applicable in detergent compositions.  
CC The present amino acid sequence represents an endoglucanase-related  
CC protein of the invention.

XX Sequence 360 AA;

Query Match 100.0%; Score 1956; DB 23; Length 360;  
Best Local Similarity 100.0%; Pred. No. 2,6e-130;  
Matches 360; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFLTIASSAIIALAVGTEMAHAECISKAYYQCGKNDGPTCCSGSTCVDPDNPFFS 60  
DB 1 MKFLTIASSAIIALAVGTEMAHAECISKAYYQCGKNDGPTCCSGSTCVDPDNPFFS 60  
QY 61 QCVNENLSTNKSHTTTTESAKKTTTGSKKTTTTEASKKTTTTEASKKTTTTEAS 120  
DB 61 QCVNENLSTNKSHTTTTESAKKTTTGSKKTTTTEASKKTTTTEASKKTTTTEAS 120  
QY 121 KTTTTTAKASTSTSSSSASASTNYSAVSGASGNGETTRWDCCKPSCMPGKADVTSP 180  
DB 121 KTTTTTAKASTSTSSSSASASTNYSAVSGASGNGETTRWDCCKPSCMPGKADVTSP 180  
QY 181 VGSCKNDGKTLADNNTONGCVGSSSYTCNDNPWVSDILAAGFAAASISGSEATWCCA 240  
DB 181 VGSCKNDGKTLADNNTONGCVGSSSYTCNDNPWVSDILAAGFAAASISGSEATWCCA 240  
QY 241 CPELFTSTAVKGMVQVNTGSDLSGNTGAHFDLQMPGGVGGINCATQWGAFTDG 300  
DB 241 CPELFTSTAVKGMVQVNTGSDLSGNTGAHFDLQMPGGVGGINCATQWGAFTDG 300  
QY 301 WGARVGVSSASDCSNLPSALQAGCKMRFGFNADNPMTYKQVTCPEKAITAKSGCSRK 360  
DB 301 WGARVGVSSASDCSNLPSALQAGCKMRFGFNADNPMTYKQVTCPEKAITAKSGCSRK 360

RESULT 3  
ABB08062  
ID ABB08062 standard; Protein; 360 AA.

XX ABB08062;

XX 27-AUG-2002 (first entry)

XX R. oryzae CP96001 RCE111 protein.

XX Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;

XX pulp treatment; RCE111.

XX Rhizopus oryzae.

XX Key Location/Qualifiers

FT Peptide 1..23

FT Protein /note= "signal peptide"

XX /note= "mature protein"

XX WO200238754-A1.

PD 16-MAY-2002.  
XX 12-NOV-2001; 2001WO-JP09858.  
XX 10-NOV-2000; 2000JP-0343921.  
XX (MEIJ) MEIJI SEIKA KAISHA LTD.  
XX Koga J, Nakane A, Baba Y, Kono T;  
XX WPI; 2002-471555/50.  
XX Cellulase preparations containing transconjugant-originated  
XX endoglucanase and non-ionic surfactants, useful in detergent  
XX compositions, in treating cellulose fibers and delinking waste paper and  
XX improving freeness of paper pulp -  
XX Claim 3; Page 25-27; 38pp; Japanese.  
XX The invention relates to a cellulase preparation comprising a  
XX transconjugant-originated endoglucanase and a non-ionic surfactant. The  
XX endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PCEI  
XX proteins. The preparations are useful in detergent compositions, in  
XX treating cellulose fibers and delinking waste paper and improving the  
XX freeness of paper pulp. The fibers treated by the preparations have  
XX reduced feathering and improved skin-feel and appearance with colour  
XX clarification, local change in colour and softening, and after delinking  
XX and paper pulp treatment, there is an improvement in freeness of the  
XX paper pulp. This treatment with the cellulase preparation can be operated  
XX at significantly lower cost. The present sequence represents the  
XX R. oryzae CP96001 RCEIII protein.  
SQ Sequence 360 AA;  
Query Match 100.0%; Score 1956; DB 23; Length 360;  
Best Local Similarity 100.0%; Pred. No. 2.6e-130;  
Matches 360; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 MKPTITASSALALAVGTEMAHAECSEKAYQCGGKMDGPTCCSGSTCYDYPDNPPYS 60  
DB 1 MKPTITASSALALAVGTEMAHAECSEKAYQCGGKMDGPTCCSGSTCYDYPDNPPYS 60  
QY 61 QCVNENMLSTNKSHTTTTESAKTTTTSKKTITTEASKTTTTEASKTTTTEAS 120  
DB 61 QCVNENMLSTNKSHTTTTESAKTTTTSKKTITTEASKTTTTEASKTTTTEAS 120  
QY 121 KKTITTTKASTSTSSSSASATNYSAVSGASNGETTRWDCCKPSCWPGKADVTSP 180  
DB 121 KKTITTTKASTSTSSSSASATNYSAVSGASNGETTRWDCCKPSCWPGKADVTSP 180  
QY 181 VGSCKNGKGTADANNONGCVGSSSYTNDNQPVVSDLAAYFPAAASISGSGSEATWCCA 240  
DB 181 VGSCKNGKGTADANNONGCVGSSSYTNDNQPVVSDLAAYFPAAASISGSGSEATWCCA 240  
QY 241 CFEFLTFTSTAVKGMVQVNTGSDLSNTGAHFDLQMPGGVGIYNGCATONGAPTDG 300  
DB 241 CFEFLTFTSTAVKGMVQVNTGSDLSNTGAHFDLQMPGGVGIYNGCATONGAPTDG 300  
QY 301 WGAARYGVSSASDCSNLPSALQAGCKWRFGMFKADNPTMTYKQVTCPKAITAKSGCSR 360  
DB 301 WGAARYGVSSASDCSNLPSALQAGCKWRFGMFKADNPTMTYKQVTCPKAITAKSGCSR 360  
RESULT 4  
AAB09821  
ID AAB09821 standard; Protein, 338 AA.  
XX AAB09821;  
XX 25-SEP-2000 (first entry)  
XX Endoglucanase protein sequence 1.  
XX

KM Endoglucanase; cellulose breakdown; produce pulp; papermaking;  
KM animal feedstuff.  
XX Rhizopus oryzae.  
XX WO200024879-A1.  
XX 04-MAY-2000.  
XX 25-OCT-1999; 99WO-JP05884.  
XX 23-OCT-1998; 98JP-0302387.  
XX (MEIJ) MEIJI SEIKA KAISHA LTD.  
XX Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;  
XX Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;  
XX WPI; 2000-365117/31.  
XX N-PSDB; AAA62726.  
XX This sequence represents an endoglucanase protein. The invention relates  
XX to an endoglucanase of fungal origin which can completely break down  
XX purified cellulose at a concentration of less than 1mg protein/litre,  
XX and produces more than 50% breakdown of cellulose at pH 8.5. The  
XX invention includes endoglucanase protein sequences (see  
XX AA09825-B09830), endoglucanase nucleotide sequences (see  
XX AAA62726-A62732), and primers (AAA62733-A62802) which are used in the  
XX identification of the endoglucanase sequences, and in the construction of  
XX vectors containing the polynucleotides. The endoglucanase enzymes are  
XX used for the production of pulp for papermaking and for the production of  
XX animal feedstuffs.  
SQ Sequence 338 AA;  
Query Match 71.8%; Score 1404; DB 21; Length 338;  
Best Local Similarity 73.7%; Pred. No. 2.3e-91;  
Matches 266; Conservative 32; Mismatches 39; Indels 24; Gaps 7;  
QY 1 MKPTITASSALALAVGTEMAHAECSEKAYQCGGKMDGPTCCSGSTCYDYPDNPPYS 60  
DB 1 MKPTITASSALALAVGTEMAHAECSEKAYQCGGKMDGPTCCSGSTCYDYPDNPPYS 60  
QY 61 QCVNENMLSTNKSHTTTTESAKTTTTSKKTITTEASKTTTTEASKTTTTEAS 120  
DB 61 QCVNENMLSTNKSHTTTTESAKTTTTSKKTITTEASKTTTTEASKTTTTEAS 120  
QY 121 KKTITTTKASTSTSSSSASATNYSAVSGASNGETTRWDCCKPSCWPGKADVTSP 180  
DB 121 KKTITTTKASTSTSSSSASATNYSAVSGASNGETTRWDCCKPSCWPGKADVTSP 180  
QY 181 VGSCKNGKGTADANNONGCVGSSSYTNDNQPVVSDLAAYFPAAASISGSGSEATWCCA 240  
DB 181 VGSCKNGKGTADANNONGCVGSSSYTNDNQPVVSDLAAYFPAAASISGSGSEATWCCA 240  
QY 241 CFEFLTFTSTAVKGMVQVNTGSDLSNTGAHFDLQMPGGVGIYNGCATONGAPTDG 300  
DB 241 CFEFLTFTSTAVKGMVQVNTGSDLSNTGAHFDLQMPGGVGIYNGCATONGAPTDG 300  
QY 301 WGAARYGVSSASDCSNLPSALQAGCKWRFGMFKADNPTMTYKQVTCPKAITAKSGCSR 360  
DB 301 WGAARYGVSSASDCSNLPSALQAGCKWRFGMFKADNPTMTYKQVTCPKAITAKSGCSR 360  
RESULT 4  
AAB09821  
ID AAB09821 standard; Protein, 338 AA.  
XX AAB09821;  
XX 25-SEP-2000 (first entry)  
XX Endoglucanase protein sequence 1.  
XX

RESULT 5  
AAO15052 standard; Protein; 338 AA.

AAO15052;

22-AUG-2002 (first entry)

Rhizopus arrhizus endoglucanase-related protein 1.

Zygomycetes-originated endoglucanase; cellulose binding domain;  
fibre processing; waste paper de-inking; paper pulp.

Rhizopus arrhizus.

MO200242474-A1.

30-MAY-2002.

21-NOV-2001; 2001MO-JP10188.

21-NOV-2000; 2000JP-0354296.

(MEIJ ) MEIJI SEIKA KAISHA LTD.

Nakane A, Baba Y, Koga J, Kubota H;

WPI; 2002-471729/50.

N-PSDB; AAL43244, AAL43250.

Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,  
PT with effect of endoglucanase activity enhanced in processing fibers,

PT deinking waste paper and improving freeness of paper pulp

Claim 5; Page 54-55; 109pp; Japanese.

The invention comprises the amino acid and coding sequences of  
CC zygomycetes-originated endoglucanase enzymes lacking the cellulose  
CC binding domain. The zygomycetes-originated endoglucanase enzymes of the  
CC invention have enhanced endoglucanase activity. The zygomycetes-  
CC originated endoglucanase enzymes of the invention are useful for  
CC processing fibers, de-inking waste paper and improving the freeness of  
CC paper pulp - which is particularly applicable in detergent compositions.  
CC The present amino acid sequence represents an endoglucanase-related  
CC protein of the invention.

Sequence 338 AA;

Query Match 71.8%; Score 1404; DB 23; Length 338;

Best Local Similarity 73.7%; Pred. No. 2.3e-91; Mismatches 39; Indels 24; Gaps 7;

Matches 266; Conservative 32; Mismatches 39; Indels 24; Gaps 7;

1 MKFLITASSALIALAVGTEMAHAECSEKAYVYQCGKRWDPPTCCSGSTCVDPDNPFS 60

1 MKFTITASSALIALAVGTEMAHAECSEKAYVYQCGKRWDPPTCCSGSTCVDPDNPFS 58

61 QCVPMENLTSTNKSHTTESAKRTTTSKRTTTSKRTTTSKRTTTSKRTTTSKRTTTSK 120

59 QCLPBG--SSGNKS-----ESAKRTTTSKRTTTSKRTTTSKRTTTSKRTTTSK 100

121 KTTTITKASTSTSSSSASTSTSTSTSTSTSTSTSTSTSTSTSTSTSTSTSTSTST 180

101 K--TTTVAKAST--PSNSSSSSSGKYSAVSGASGAGVTRRYWDCCKASCSMPGAAVSSP 157

181 VGSCKKDKGT--LADNNTONGCVGSSSYTCNDQPVWVSDIAYGFAAASISGSEATWCC 239

158 VASCKNDGVTALSDNSAGSCNGNSYMCNDQPAVADNLAYGFAAASISGSEATWCC 217

240 ACFFELFTSTAVKGGKVVVQVNTGSDIGSNTGAHFDIOMPGGVGIYNGCATQWAPTD 299

218 SCFFELFTSTAVKGGKVVVQVNTGSDIGSNTGAHFDIOMPGGVGIYNGCATQWAPTD 277

300 GNGARYGVVSSASDCSNLPSALQAGCKMRFMGFKADNPMTYKQVTPCKAITAKSGCSR 359

Db 278 GWSRFGISASDCSNLPSALQAGCKMRFMGFKADNPMTYKQVTPCKAITAKSGCSR 337

Qy 360 K 360

Db 338 K 338

RESULT 6

ABO8060 standard; protein; 338 AA.

ABO8060;

27-AUG-2002 (first entry)

R. oryzae CP96001 RCEI protein.

Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;  
pulp treatment; RCEI.

Rhizopus oryzae.

Key Location/Qualifiers

Peptide /note="signal peptide"

Protein /note="mature protein"

MO200238754-A1.

16-MAY-2002.

12-NOV-2001; 2001MO-JP09858.

10-NOV-2000; 2000JP-0343921.

(MEIJ ) MEIJI SEIKA KAISHA LTD.

Koga J, Nakane A, Baba Y, Kono T;

WPI; 2002-471555/50.

Cellulase preparations containing transconjugant-originated  
PT endoglucanase and non-ionic surfactants, useful in detergent  
PT compositions, in treating cellulose fibers and deinking waste paper and  
PT improving freeness of paper pulp

Claim 3; Page 21-22; 38pp; Japanese.

The invention relates to a cellulase preparation comprising a  
CC transconjugant-originated endoglucanase and a non-ionic surfactant. The  
CC endoglucanase is selected from RCEI, RCEII, RCEIII or RCEIV  
CC proteins. The preparations are useful in detergent compositions, in  
CC treating cellulose fibers and deinking waste paper and improving the  
CC freeness of paper pulp. The fibers treated by the preparations have  
CC reduced feathering and improved skin-feel and appearance with colour  
CC clarification, local change in colour and softening, and after deinking  
CC and paper pulp treatment, there is an improvement on freeness of the  
CC paper pulp. This treatment with the cellulase preparation can be operated  
CC at significantly lower cost. The present sequence represents the  
CC R. oryzae CP96001 RCEI protein.

Sequence 338 AA;

Query Match 71.8%; Score 1404; DB 23; Length 338;

Best Local Similarity 73.7%; Pred. No. 2.3e-91; Mismatches 39; Indels 24; Gaps 7;

Matches 266; Conservative 32; Mismatches 39; Indels 24; Gaps 7;

1 MKFLITASSALIALAVGTEMAHAECSEKAYVYQCGKRWDPPTCCSGSTCVDPDNPFS 60

1 MKFTITASSALIALAVGTEMAHAECSEKAYVYQCGKRWDPPTCCSGSTCVDPDNPFS 58



CC binding domain. The zygomycetes-originated endoglucanase enzymes of the  
 CC invention have enhanced endoglucanase activity. The zygomycetes-  
 CC originated endoglucanase enzymes of the invention are useful for  
 CC processing fibres, de-inking waste paper and improving the freeness of  
 CC paper pulp - which is particularly applicable in detergent compositions.  
 CC The present amino acid sequence represents an endoglucanase-related  
 CC protein of the invention.

XX  
 XX  
 SQ Sequence 366 AA;

Query Match 68.1%; Score 1332; DB 23; Length 366;  
 Best Local Similarity 66.4%; Pred. No. 3.1e-86;  
 Matches 249; Conservative 39; Mismatches 63; Indels 24; Gaps 5;

QY 1 MKFLITASSALILAVGTEMAHAEGSKAYYOCGGKMDGPTCCESGSTCVDPDPNPFYS 60  
 DB 1 MKFLITSSALILAVGTEMAHAEGSKAYYOCGGKMDGPTCCESGSTC--KVANDYYS 58  
 QY 61 QCVNENILSTNKS-----HKTTSKAKTTTYSKSKTTTTEASKTT 106  
 DB 59 QCLAPE--SNKNSSSECSKLYGCGGKMDNGPTCCESGSTCKVSNDYYSQCLAPESNGNK 116  
 QY 107 TTEASKTTTTEASKTTTITTKASTSTSSSSASTNYSAVSGASGNGETTRYWDCK 166  
 DB 117 TSESNAHKTITTTTAAKITTITTAASNSNSG-----KSIYSGASGNGVTRRYWDCK 171  
 QY 167 PSCSMFGKADVTSPVSGCNKDGKT-LADNNTONGCVGSSSYTCNDNQPVVSDLAIFYA 225  
 DB 172 ASCSMFGKAVNSVPSKCNKDGVTALSDSNVSGCNGNSYMCNDNQPVAVNDNLAYGFA 231  
 QY 226 AASISGSEATWCCACFELTFTSTAVYGGKRVVNTGSDLSNTGAHFDLMPGGGVG 285  
 DB 232 AASISGSESRWCCCFELTFTSTVAGKRVIVNTGDLSSSTGAHFDLMPGGGVG 291  
 QY 286 IYNGCATOWGAPTDGMDGARYGVSSASDPSNLPSALQAGCKMRPFKADNPTTYKQY 345  
 DB 292 IFNGSKQWGANPDGMSRYGIGISASDPSLPSALQAGCKMRPFKADNPTTYKEY 351  
 QY 346 TCPKAITAKSGCSRK 360  
 DB 352 TCPKEITAKTGCSRK 366

RESULT 9  
 ABB08061  
 ID ABB08061 standard; protein; 366 AA.

XX ABB08061;  
 AC  
 XX 27-ANG-2002 (first entry)  
 DT  
 XX R. oryzae CP96001 RCEII protein.  
 DE  
 XX Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;  
 KM pulp treatment; RCEII.  
 XX Rhizopus oryzae.  
 OS

XX Key location/Qualifiers  
 FH Peptide 1..23  
 FT /note= "signal peptide"  
 FT Protein 24..366  
 FT /note= "mature protein"

XX WO200238754-A1.  
 XX  
 XX 16-MAY-2002.  
 XX  
 XX 12-NOV-2001; 2001WO-JP09858.  
 XX  
 XX 10-NOV-2000; 2000JP-0343921.  
 XX  
 XX (MEIJ ) MEIJI SEIKA KAISHA LTD.

XX Koga J, Nakane A, Baba Y, Kono T;  
 PI  
 XX WPI; 2002-471555/50.  
 DR

XX Cellulase preparations containing transconjugant-originated  
 PT endoglucanase and non-ionic surfactants, useful in detergent  
 PT compositions, in treating cellulose fibers and delinking waste paper and  
 PT improving freeness of paper pulp  
 XX  
 XX  
 PS Claim 3; Page 23-24; 38pp; Japanese.

CC The invention relates to a cellulase preparation comprising a  
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The  
 CC endoglucanase is selected from RCEI, RCEII, RCEIII, MCEII or PCBI  
 CC proteins. The preparations are useful in detergent compositions, in  
 CC treating cellulose fibers and delinking waste paper and improving the  
 CC freeness of paper pulp. The fibers treated by the preparations have  
 CC reduced feathering and improved skin-feel and appearance with colour  
 CC clarification, local change in colour and softening, and after delinking  
 CC paper pulp. This treatment with the cellulase preparation can be operated  
 CC at significantly lower cost. The present sequence represents the  
 CC R. oryzae CP96001 RCEII protein.

SQ Sequence 366 AA;

Query Match 68.1%; Score 1332; DB 23; Length 366;  
 Best Local Similarity 66.4%; Pred. No. 3.1e-86;  
 Matches 249; Conservative 39; Mismatches 63; Indels 24; Gaps 5;

QY 1 MKFLITASSALILAVGTEMAHAEGSKAYYOCGGKMDGPTCCESGSTCVDPDPNPFYS 60  
 DB 1 MKFLITSSALILAVGTEMAHAEGSKAYYOCGGKMDGPTCCESGSTC--KVANDYYS 58  
 QY 61 QCVNENILSTNKS-----HKTTSKAKTTTYSKSKTTTTEASKTT 106  
 DB 59 QCLAPE--SNKNSSSECSKLYGCGGKMDNGPTCCESGSTCKVSNDYYSQCLAPESNGNK 116  
 QY 107 TTEASKTTTTEASKTTTITTKASTSTSSSSASTNYSAVSGASGNGETTRYWDCK 166  
 DB 117 TSESNAHKTITTTTAAKITTITTAASNSNSG-----KSIYSGASGNGVTRRYWDCK 171  
 QY 167 PSCSMFGKADVTSPVSGCNKDGKT-LADNNTONGCVGSSSYTCNDNQPVVSDLAIFYA 225  
 DB 172 ASCSMFGKAVNSVPSKCNKDGVTALSDSNVSGCNGNSYMCNDNQPVAVNDNLAYGFA 231  
 QY 226 AASISGSEATWCCACFELTFTSTAVYGGKRVVNTGSDLSNTGAHFDLMPGGGVG 285  
 DB 232 AASISGSESRWCCCFELTFTSTVAGKRVIVNTGDLSSSTGAHFDLMPGGGVG 291  
 QY 286 IYNGCATOWGAPTDGMDGARYGVSSASDPSNLPSALQAGCKMRPFKADNPTTYKQY 345  
 DB 292 IFNGSKQWGANPDGMSRYGIGISASDPSLPSALQAGCKMRPFKADNPTTYKEY 351  
 QY 346 TCPKAITAKSGCSRK 360  
 DB 352 TCPKEITAKTGCSRK 366

RESULT 10  
 AAB09824  
 ID AAB09824 standard; Protein; 338 AA.

XX AAB09824;

XX 25-SEP-2000 (first entry)

XX Endoglucanase protein sequence 4.  
 DE Endoglucanase; cellulose breakdown; produce pulp; papermaking;  
 XX animal foodstuff.  
 KW  
 XX



OS Mucor circinelloides.  
 XX WO200024879-A1.  
 XX 04-MAY-2000.  
 XX PD  
 XX 25-OCT-1999; 99WO-JP05884.  
 XX PR 23-OCT-1998; 98JP-0302387.  
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.  
 XX Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida H, Nishimura T;  
 PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;  
 XX WPI, 2000-365117/31.  
 DR N-PSDB; AAA62729.  
 XX  
 PT Endoglucanases of fungal origin with high activity under alkaline  
 conditions for production of paper pulp and animal feedstuffs -  
 PS Claim 44; Page 120-122; 180pp; Japanese.  
 XX  
 CC This sequence represents an endoglucanase protein. The invention relates  
 CC to an endoglucanase of fungal origin which can completely break down  
 CC purified cellulose at a concentration of less than 1mg protein/litre,  
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The  
 CC invention includes endoglucanase protein sequences (see  
 CC AA09825-B09830), endoglucanase nucleotide sequences (see  
 CC AA062726-A62732), and primers (AA062733-A62802) which are used in the  
 CC identification of the endoglucanase sequences, and in the construction of  
 CC vectors containing the polynucleotides. The endoglucanase enzymes are  
 CC used for the production of pulp for papermaking and for the production of  
 CC animal feedstuffs.  
 XX  
 XX Sequence 338 AA;  
 SQ  
 Query Match 61.8%; Score 1209; DB 21; Length 338;  
 Best Local Similarity 61.1%; Pred. No. 1.4e-77;  
 Matches 220; Conservative 42; Mismatches 76; Indels 22; Gaps 5;  
 QY 1 MKPFTIASIALALAVGTEMAHAABCSKAYVQCGGKMDGPTCCESGSTCYVDYDNPFS 60  
 DB 1 MKPFTVAITSIAVALALSSS-ABAASCSGVGCGGIGMSGPTCCESGSTCVAQSGNKYYS 59  
 QY 61 QCVNENLSTNKSHTTTTBSAKTTTTSKTTTTSKTTTTSKTTTTSKTTTTSKTTTTSK 120  
 DB 60 QCLPGSHSNAGNANS-----STKKTST---KTSITTAATATVTTKTKTT----- 103  
 QY 121 KKTITTTKASTSTSSSSSSASTNYSAVSGASNGETTRVWDCKPSCSWPGKADYTS 180  
 DB 104 --TKTTTSTTAALASTSTSSAGKVIISGKSGSGSTTRVWDCKKASCSPGKASVTGP 161  
 QY 181 VGSCKNGKTLADNNTONGCVGSSSYTCNDNQPVVSDDLAYGFAAASISGSSSATWCCA 240  
 DB 162 VDTCASNGISILDANAAGCGNGGFCMNNQPAVANDELAYGFAAASISGSSSATWCCA 221  
 QY 241 CFEITFTSTAVKGGKMYVQVNTGSDLSNTGAHFDLMPGCGVGIYNGCATOGAPITDG 300  
 DB 222 CYELFTFTSGAASGKMYVQVNTGSDLSN---HFDLMPGCGVGIYNGCAOAGAPITDG 278  
 QY 301 WGARVGVSSASDCSNLPSALQAGCKWRFGMFKXNDNPTMTYKQVTCPEKAITTASGCSR 360  
 DB 279 WGARVGVSSVSDCASLPSALQAGCKWRFGMFKXNDNPTMTFKVTCPEALITTSGCCERK 338

XX Rhizopus arrhizus endoglucanase-related protein 4.  
 DE  
 XX Zygomycetes-originated endoglucanase; cellulose binding domain;  
 KW fibre processing; waste paper de-inking; paper pulp.  
 XX  
 OS Mucor circinelloides.  
 XX WO200242474-A1.  
 XX 30-MAY-2002.  
 XX PD  
 XX 21-NOV-2001; 2001WO-JP10188.  
 XX PR 21-NOV-2000; 2000JP-0354296.  
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.  
 XX Nakane A, Baba Y, Koga J, Kubota H;  
 PI WPI, 2002-471729/50.  
 DR N-PSDB; AAA43247.  
 XX  
 PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,  
 PT with effect of endoglucanase activity enhanced in processing fibers,  
 PT deinking waste paper and improving freeness of paper pulp -  
 PS Claim 5; Page 68-70; 109pp; Japanese.  
 XX  
 CC The invention comprises the amino acid and coding sequences of  
 CC zygomycetes-originated endoglucanase enzymes lacking the cellulose  
 CC binding domain. The zygomycetes-originated endoglucanase enzymes of the  
 CC invention have enhanced endoglucanase activity. The zygomycetes-  
 CC originated endoglucanase enzymes of the invention are useful for  
 CC processing fibres, de-inking waste paper and improving the freeness of  
 CC paper pulp - which is particularly applicable in detergent compositions.  
 CC The present amino acid sequence represents an endoglucanase-related  
 CC protein of the invention.  
 XX  
 XX Sequence 338 AA;  
 SQ  
 Query Match 61.8%; Score 1209; DB 23; Length 338;  
 Best Local Similarity 61.1%; Pred. No. 1.4e-77;  
 Matches 220; Conservative 42; Mismatches 76; Indels 22; Gaps 5;  
 QY 1 MKPFTIASIALALAVGTEMAHAABCSKAYVQCGGKMDGPTCCESGSTCYVDYDNPFS 60  
 DB 1 MKPFTVAITSIAVALALSSS-ABAASCSGVGCGGIGMSGPTCCESGSTCVAQSGNKYYS 59  
 QY 61 QCVNENLSTNKSHTTTTBSAKTTTTSKTTTTSKTTTTSKTTTTSKTTTTSKTTTTSK 120  
 DB 60 QCLPGSHSNAGNANS-----STKKTST---KTSITTAATATVTTKTKTT----- 103  
 QY 121 KKTITTTKASTSTSSSSSSASTNYSAVSGASNGETTRVWDCKPSCSWPGKADYTS 180  
 DB 104 --TKTTTSTTAALASTSTSSAGKVIISGKSGSGSTTRVWDCKKASCSPGKASVTGP 161  
 QY 181 VGSCKNGKTLADNNTONGCVGSSSYTCNDNQPVVSDDLAYGFAAASISGSSSATWCCA 240  
 DB 162 VDTCASNGISILDANAAGCGNGGFCMNNQPAVANDELAYGFAAASISGSSSATWCCA 221  
 QY 241 CFEITFTSTAVKGGKMYVQVNTGSDLSNTGAHFDLMPGCGVGIYNGCATOGAPITDG 300  
 DB 222 CYELFTFTSGAASGKMYVQVNTGSDLSN---HFDLMPGCGVGIYNGCAOAGAPITDG 278  
 QY 301 WGARVGVSSASDCSNLPSALQAGCKWRFGMFKXNDNPTMTYKQVTCPEKAITTASGCSR 360  
 DB 279 WGARVGVSSVSDCASLPSALQAGCKWRFGMFKXNDNPTMTFKVTCPEALITTSGCCERK 338

XX ABB08063;  
 AC 27-AUG-2002 (first entry)  
 DT M. circinelloides CP99001 MCEI protein.  
 XX M. circinelloides CP99001 MCEI protein.  
 DE Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;  
 XX pulp treatment; MCEI.  
 KM Mucor circinelloides.  
 XX Mucor circinelloides.  
 OS  
 XX Key Location/Qualifiers  
 XX FH Peptide 1..22  
 XX FT /note= "signal peptide"  
 XX FT 23..338  
 XX FT Protein /note= "mature protein"  
 FT  
 XX MO200238754-A1.  
 XX  
 XX 16-MAY-2002.  
 PD  
 XX 12-NOV-2001; 2004MO-JP09858.  
 PF  
 XX 10-NOV-2000; 2000JP-0343921.  
 PR  
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.  
 XX  
 XX Koga J., Nakane A., Baba Y., Kono T;  
 XX WPI; 2002-471555/50.  
 DR  
 XX Cellulase preparations containing transconjugant-originated  
 XX endoglucanase and non-ionic surfactants, useful in detergent  
 XX compositions, in treating cellulose fibers and delinking waste paper and  
 XX improving freeness of paper pulp -  
 PT  
 XX Claim 3; Page 27-29; 38pp; Japanese.  
 PS  
 XX The invention relates to a cellulase preparation comprising a  
 XX transconjugant-originated endoglucanase and a non-ionic surfactant. The  
 XX endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PC  
 XX proteins. The preparations are useful in detergent compositions, in  
 XX treating cellulose fibers and delinking waste paper and improving the  
 XX freeness of paper pulp. The fibers treated by the preparations have  
 XX reduced feathering and improved skin-feel and appearance with colour  
 XX clarification, local change in colour and softening, and after delinking  
 XX and paper pulp treatment, there is an improvement on freeness of the  
 XX paper pulp. This treatment with the cellulase preparation can be operated  
 XX at significantly lower cost. The present sequence represents the  
 XX M. circinelloides CP99001 MCEI protein.  
 CC  
 CC Sequence 338 AA;  
 SQ  
 Query Match 61.8%; Score 1209; DB 23; Length 338;  
 Best Local Similarity 61.1%; Pred. No. 1.4e-77;  
 Matches 220; Conservative 42; Mismatches 76; Indels 22; Gaps 5;

QY 241 CPELTSTAVKGMVYQVNTGSDLGSTGAHFIDLOMPGGVGIYNGCATOWGAPTDG 300  
 DB 222 CYELFTSGASGKMMVQVNTGDDLSN---HFDLOMPGGVGIYNGCAOWGABNDG 278  
 QY 301 WGARVGVSSASDCSNLPSALQAGCKMRFKQADNPTMYKQVTPKAITAGSGSRK 360  
 DB 279 WGARVGVSSVSDCASLPSALQAGCKMRFKQADNPTMYKQVTPKAITAGSGSRK 338  
 RESULT 13  
 AAB09825  
 ID AAB09825 standard; Protein, 387 AA.  
 AC AAB09825;  
 DT 25-SEP-2000 (first entry)  
 DE Endoglucanase protein sequence 5.  
 XX Endoglucanase; cellulose breakdown; produce pulp; papermaking;  
 XX animal feedstuff.  
 XX animal feedstuff.  
 XX Pnycomyes nitens.  
 OS  
 XX MO200024879-A1.  
 XX  
 XX 04-MAY-2000.  
 PD  
 XX 25-OCT-1999; 99MO-JP05884.  
 PF  
 XX 23-OCT-1998; 98JP-0302387.  
 PR  
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.  
 XX  
 XX Nakamura Y., Moriya T., Baba Y., Yanai K., Sumida N., Nishimura T;  
 XX Mureshima K., Nakane A., Yaguchi T., Koga J., Murakami T., Kono T;  
 XX WPI; 2000-365117/31.  
 DR N-PSDB; AAB62730.  
 XX  
 XX Endoglucanases of fungal origin with high activity under alkaline  
 XX conditions for production of paper pulp and animal feedstuffs -  
 PT  
 XX Claim 44; Page 125-127; 180pp; Japanese.  
 PS  
 XX This sequence represents an endoglucanase protein. The invention relates  
 XX to an endoglucanase of fungal origin which can completely break down  
 XX purified cellulose at a concentration of less than 1mg protein/1litre,  
 XX and produces more than 50% breakdown of cellulose at pH 8.5. The  
 XX invention includes endoglucanase protein sequences (see  
 XX AAB09825-B09830), endoglucanase nucleotide sequences (see  
 XX AAB62726-A62732) and primers (AAB62733-A62802) which are used in the  
 XX identification of the endoglucanase sequences, and in the construction of  
 XX vectors containing the polynucleotides. The endoglucanase enzymes are  
 XX used for the production of pulp for papermaking and for the production of  
 XX animal feedstuffs.  
 CC  
 CC animal feedstuffs.  
 CC  
 CC Sequence 387 AA;  
 SQ  
 Query Match 61.1%; Score 1195.5; DB 21; Length 387;  
 Best Local Similarity 56.2%; Pred. No. 1.4e-76;  
 Matches 221; Conservative 47; Mismatches 86; Indels 39; Gaps 6;

```

Db 120 GNASTKKTSTKTS--TTAKATATVTTKVTKTTTSTTAASSTSSAGYKV 177
Qy 148 VSGASGNGETTRWDCCKSCSWPGKADVTSPIVSGCNKDKTLADNNTONGCVGSSYT 207
Db 178 ISGKSGSGSTTRWDCCKASCWPGKASVYGPVDTCAANGISILDANAGSGCNGGFM 237
Qy 208 CNDQPMVWSDLLAYGPAASISGSGSEATWCCAFELTFTSTAVKGRKVVQVNTGSDL 267
Db 238 CNDQPMVWSDLLAYGPAASISGSGSEATWCCAFELTFTSTAVKGRKVVQVNTGSDL 297
Qy 268 GSNTHAFDLOMPGGGVGYNGCATOWGAPTDGNGARYGVSSASDCSNLPSALOAGCKW 327
Db 298 GSN--HFDLOMPGGGVGYNGCATOWGAPTDGNGARYGVSSASDCSNLPSALOAGCKW 354
Qy 328 RFGWFKNADNPTMTYKQVTCPKAITAKSGCSRK 360
Db 355 RFWNFKNSDNPMTFKEVTCPELITRSGCERK 387

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## RESULT 14

ID AAO15056 standard; Protein; 387 AA.

XX AAO15056;

XX 22-AUG-2002 (first entry)

XX Rhizopus arrhizus endoglucanase-related protein 5.

XX Zygomycetes-originated endoglucanase; cellulose binding domain;

XX fibre processing; waste paper de-inking; paper pulp.

XX Mucor circinelloides.

XX MO200242474-A1.

XX 30-MAY-2002.

XX 21-NOV-2001; 2001WO-JP10188.

XX 21-NOV-2000; 2000JP-0354296.

XX (MEIJ ) MEIJ SEIKA KAISHA LTD.

XX Nakane A, Baba Y, Koga J, Kubota H;

XX WPI; 2002-471729/50.

XX N-PSDB; AAL43248.

XX Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,

XX with effect of endoglucanase activity enhanced in processing fibers,

XX deinking waste paper and improving freeness of paper pulp -

XX Claim 5; Page 73-75; 109pp; Japanese.

XX The invention comprises the amino acid and coding sequences of

XX zygomycetes-originated endoglucanase enzymes lacking the cellulose

XX binding domain. The zygomycetes-originated endoglucanase enzymes of the

XX invention have enhanced endoglucanase activity. The zygomycetes-

XX originated endoglucanase enzymes of the invention are useful for

XX processing fibres, de-inking waste paper and improving the freeness of

XX paper pulp - which is particularly applicable in detergent compositions.

XX The present amino acid sequence represents an endoglucanase-related

XX protein of the invention.

XX Sequence 387 AA;

XX Query Match / 61.1%; Score 1195.5; DB 23; length 387;

XX Best Local Similarity 56.2%; Pred. No. 1.4e-76;

XX Matches 221; Conservative 47; Mismatches 86; Indels 39; Gaps 6;

Qy 1 MKPILIASALIALAVGTEMMAHAECRAVYQCGGKMDPPTCESGSGTCVDYDPNPYVS 60

```

Db 1 MKFTVATISIAVVALASS-ABAAACSVYGGCGGIGMTGPTCCDAGSTCKAQKDNKYYS 59
Qy 61 QCPVENLSTSNKSHKT-----TTESAKTTTIGSK-----94
Db 60 QCPKPKGSSSSSSCSVSGCCGIGNSGPTCESGSTCAOAGNKYYSOCLPGSHSMA 119
Qy 95 -----KTTTBAASKTTTTEASKTTTTEASKTTT-TTTKAATSTSSSSASTVYSA 147
Db 120 GNASTKKTSTKTS--TTAKATATVTTKVTKTTTSTTAASSTSSAGYKV 177
Qy 148 VSGASGNGETTRWDCCKSCSWPGKADVTSPIVSGCNKDKTLADNNTONGCVGSSYT 207
Db 178 ISGKSGSGSTTRWDCCKASCWPGKASVYGPVDTCAANGISILDANAGSGCNGGFM 237
Qy 208 CNDQPMVWSDLLAYGPAASISGSGSEATWCCAFELTFTSTAVKGRKVVQVNTGSDL 267
Db 238 CNDQPMVWSDLLAYGPAASISGSGSEATWCCAFELTFTSTAVKGRKVVQVNTGSDL 297
Qy 268 GSNTHAFDLOMPGGGVGYNGCATOWGAPTDGNGARYGVSSASDCSNLPSALOAGCKW 327
Db 298 GSN--HFDLOMPGGGVGYNGCATOWGAPTDGNGARYGVSSASDCSNLPSALOAGCKW 354
Qy 328 RFGWFKNADNPTMTYKQVTCPKAITAKSGCSRK 360
Db 355 RFWNFKNSDNPMTFKEVTCPELITRSGCERK 387

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## RESULT 15

ID ABB08064 standard; protein; 387 AA.

XX ABB08064;

XX 27-AUG-2002 (first entry)

XX M. circinelloides CP99001 MCEII protein.

XX Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;

XX pulp treatment; MCEII.

XX Mucor circinelloides.

XX Key

XX Peptide 1..22 Location/Qualifiers

XX Protein /note= "signal peptide" 23..387

XX /note= "mature protein"

XX MO200238754-A1.

XX 16-MAY-2002.

XX 12-NOV-2001; 2001WO-JP09858.

XX 10-NOV-2000; 2000JP-0343921.

XX (MEIJ ) MEIJ SEIKA KAISHA LTD.

XX Koga J, Nakane A, Baba Y, Kono T;

XX WPI; 2002-471555/50.

XX Cellulase preparations containing transconjugant-originated

XX endoglucanase and non-ionic surfactants, useful in detergent

XX compositions, in treating cellulose fibers and deinking waste paper and

XX improving freeness of paper pulp -

XX Claim 3; Page 29-31; 38pp; Japanese.

XX The invention relates to a cellulase preparation comprising a

XX transconjugant-originated endoglucanase and a non-ionic surfactant. The

XX endoglucanase is selected from RCEI, RCEII, MCEI, MCEII or PCEI

Query Match	61.1%;	Score 1195.5;	DB 23;	Length 387;
Best Local Similarity	56.2%;	Pred. No. 1.4e-76;		
Matches 221;	Conservative .47;	Mismatches 86;	Indels 39;	Gaps 6;

```

QY      1 MKEFTIASSAIIALAVGTEHMAHAECCKAYIQQCGKRMQDEPTCCSGSTCVYDPNPFYS 60
Db      1 MKEFTVAITSIAVALALSISS-AEAAACSSVGGQCGGIGMTGPTCCDAGSTCKAQKKNKYIS 59
QY      61 QCVPMENLITNWKSSHKT-----TTTSAKKTITTTKSK----- 94
Db      60 QCIIPKRGSSSSSSCSVSYQCGGIGMGPICCSGSGTCAVAQEGNKYISQCLPGSHSNA 119
QY      95 -----KTTTTEASKKTTTTEASKKTTTTEASKKTTTTKKASTSTSSSSSASTSTNYSA 147
Db      120 GNASTTKTISTKYS--TTAKATATVATTKYTKTKTKTKTKTTSTAASTSTESSAKGYK 177
QY      148 VSGGASGNGETTRYMDCCKPSCSWPFGKADYTSVPVGSCKDGLTADNNTNGCVGGSYST 207
Db      178 ISGGKSGSGTTRKYMCCCKASCWGSKASTVTPDVTCAINSIILDDANAGCGGNGGNGFM 237
QY      208 CKNQNPVVVSDDLAVGFAAASISGGSSEATWCACFELTFSTAYAKGKKMYYVQNTNGSDL 267
Db      238 CKNQNPVAVNDELAYGFAAASISGSEADWCCGCEYELFTFGAASGKKMYYVQNTNGSDL 297
QY      268 GSNITGAHFDLQMPGGGVIYNGCATQWGAPTDGMGARYGVSASADCSNLPASALOACCKW 327
Db      298 GSN---HFIDLQMPGGGVIYNGCAAOQWGANPDQMGARIGVSVSDCASLPSALOACCKW 356
QY      328 RFGGFKNADNPMTYTKOYTCPPKAITAKSGCSRK 360
Db      355 RFWNFKSNDNPMTYTKFKVTCPEALFETIRSGCERK 387

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Job time : 40.4567 secs